duct having one or more internal compression surfaces wherein substantially all of the compression of said airflow takes place within said inlet duct,

as consid

a centerbody positioned within said duct and having a leading edge;

said opening of said internal duct further comprised of a leading edge, wherein said leading edge of said duct is staggered in location with respect to the leading edge of the centerbody; and

said throat section of the inlet further includes a shock stability bleed system, wherein a portion of said airflow is removed from said internal duct so that a shock wave is maintained within said throat section.

REMARKS

Reconsideration of the rejections to the claims of this application is respectfully requested. Claims 1-8 and 12-19 are pending in this application. The office action objected to the drawings for failing to show every feature of the invention specified in the claims, namely, the plenums with control valves. Applicant has amended the drawings and submits herewith a new drawing sheet with new figures 10E-10H illustrating a bleed plenum or passage 98 and a variable exit control valve 99. Support for this new drawing sheet may be found on page 4 lines 24-25, page 11 lines 29-31 and page 12 lines 1-2. See also page 10, lines 24-31 and page 11, lines 1-12.

The office action objected to the specification as failing to provide proper antecedent basis for the claimed subject matter of claims 8-9. Claim 9 has been canceled. Claim 8 has been amended to broaden the scope of claim coverage.

The office action further rejected claims 2-9 under 35 U.S.C. 112, first paragraph as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains. Claims 2-8 have been amended in order to overcome this rejection. Claim 2 has been amended to clarify that bleed regions are located on the internal compression surfaces of the inlet duct, while claim 1 has been amended to clarify that the inlet incorporates a shock stability bleed system having one or more bleed regions, wherein a portion

of the airflow is removed from the internal duct so that a shock wave is maintained within the throat section. Taken these claim amendments together, it should be now understood that the bleed regions are removing or bleeding airflow from the inlet duct of the inlet to the bleed passageways. Claims 2, 6 and 10 have been further amended to address the other issues raised on page three of the office action.

The office action further rejected claims 2-9 under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant has reviewed and amended the claims for compliance with 35 U.S.C. 112, second paragraph.

The office action further rejected claims 1 and 10 under 35 USC 103(a) as being unpatentable over Syberg in view of Tindell. The office action further rejected claims 2-9 under 35 USC 103(a) as being unpatentable over Syberg in view of Tindell and Ball. The office action further states that Syberg discloses a supersonic inlet where all of the air compression takes place but lacks the shock stability bleed system, and that Tindell discloses that shock stability bleed systems are well known in the art. Applicant respectfully disagrees for the following reasons. Applicant's amended claim 1 requires an internal compression supersonic inlet having an internal duct ... having one or more internal compression surfaces wherein substantially all of the air compression takes place within said inlet internal duct. Neither the Syberg reference nor the Tindell reference teaches an all internal compression supersonic inlet. The Syberg reference teaches an external compression inlet. See Col. 1, lines 18-20, and Col. 3 lines 42-46. The Tindell reference refers to a mixed compression inlet having an internal and an external compression surface. See Col. 2, lines 61-62. Further, the Tindell reference is directed to the injection or blowing of high pressure air into the inlet duct in order to control boundary layer separation. Applicant's invention is the exact opposite (i.e., the direction of the airflow is opposite). In Applicant's invention, airflow from the inlet duct is bled off to the passageways in order to control the stability of the shock wave within the duct. Thus Applicant's invention is suctioning air out of the duct while Tindell's reference is blowing air into the duct. Further, Applicant's invention is directed to a completely different problem - stabilization of the shock wave in order to prevent inlet unstart (the shock being expelled from the inlet duct) and the

associated performance problems. For the foregoing reasons, Applicant respectfully requests that the above rejections and objections be removed.

CONCLUSION

Applicant respectfully requests reconsideration of Claims 1-8 and 12-19, as Applicant believes the amendments made herein put the application in condition for allowance. A marked version of the specification and claims follows this response to show the changes to the specification and claims.

Respectfully submitted,

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Marked Up Version of Claims To Show Changes Made

1. [A]An internal compression supersonic [air] aircraft inlet comprising:[,] an internal duct having an opening for receiving airflow and a throat section, said internal duct having one or more internal compression surfaces wherein substantially all of the [air] compression of said airflow takes place within said inlet internal duct, said throat section of the inlet further incorporating a shock stability bleed system[,] having one or more bleed passageways, wherein a portion of said airflow is removed from said internal duct through said one or more bleed passageways so that an airflow shock wave is maintained within said throat section [and comprising external surfaces that are substantially aligned with the airflow approaching the inlet in order to minimally contribute to the sonic boom signature of an aircraft].

2. An inlet according to claim 1 [further comprising a] wherein said shock stability bleed system further comprises bleed passages having a variable area exit [that is comprised of bleed regions on the interior surfaces of the inlet exiting into bleed plenums with fixed or variable–exit area control valves, that provides the inlet with the necessary tolerance to changes in engine mass-flow demand or external disturbances (changes in incoming flow angularity or speed), and which prevents inlet unstart under such adverse conditions].

3. An inlet according to claim 1 [2,] wherein said throat section of said inlet further [comprising] comprises movable sidewalls in the throat section for varying the throat area [variable cowl surface geometry to provide the variation in surface geometry and throat area necessary for optimum inlet performance and meeting the propulsion system's off-design mass-flow demand schedule].

4. An inlet according to claim [3] 1 wherein said internal duct has a rectangular cross-section. [which is two-dimensional or axisymmetric.]

5. An inlet according to claim [4] 1 wherein the [interior] internal compression surfaces of said inlet duct are shaped to produce [are composed of a series of distinct compression angles, or form a substantially] isentropic compression of the airflow [system between said inlet initial angled compression surface and throat of said inlet].

6. An inlet according to claim [5] 1, wherein said inlet further comprises exterior

surfaces having [wherein the downstream exterior inlet surfaces may be maintained as] a rectangular cross-section [or transitioned to a round nacelle].

7. An inlet according to claim [6] 1 wherein said inlet further comprises [said] external surfaces that are aligned with the flow of air to the inlet [, and interior surfaces at the entrance of the inlet are at an angle of about 2° to 5° to said flow].

8 An inlet according to claim 6 wherein said external surfaces are substantially [within about 5° of] parallel to the flow of air to the inlet [, and interior surfaces at the entrance to the inlet are at angles of about 3° to 10° to said flow].